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DESCRIPTION OF A NEW SPECIES OF THE GENUS DACTYNOTUS RAFINESQUE FROM JAPAN AND OTHER NOTES

(HOMOPTERA : APHIDIDAE)

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In 1962 an excellent revision of the Japanese species of the genus *Dactynotus* Rafinesque (1818) was published by the late Dr. R. Takahashi. So far as his revision is concerned 13 species have been known to occur in Japan. In the present paper will be given two other species, of which one is new to science and the other new to Japan. On this occasion new synonymy will be discussed hereinafter.

Before going further I wish to express my sincere thanks to Professor C. Watanabe for his kind guidance and encouragement. Thanks are also due to Dr. V. F. Eastop of the British Museum (Natural History), for his kindness in offering good advice and valuable material.

Dactynotus triphyllae, sp. n.

Apterous viviparous female: Body reddish brown. Antennae black; 3rd segment pale at base. Legs dark brown; femora on apical half, tibiae at both base and apex, and tarsi black. Siphunculi and cauda black. Body oval, 2.5–3.2 mm. in length excluding cauda.

Dorsum of head with 3–5 pairs of pointed setae which are more than twice as long as middle diameter of 3rd antennal segment, and sometimes with a few short additional ones. Frontal sinus shallow. Antennae about 1.1 times as long as body; 2nd segment imbricated on distal half; 3rd segment with 30–60 sensoria on basal 4/7–5/7, the setae being longer than middle diameter of the segment. Relative length of antennal segments: III–53, IV–31, V–29, VI–10+38. Rostrum reaching hind coxae; ultimate segment 1.1 times as long as 2nd segment of hind tarsus, with 4 or 5 pairs of secondary setae. Hind tibia with setae distinctly longer than its middle diameter. First tarsal segments of all legs with 3–5 setae. Sclerites of abdomen developed, being isolated from each other on anterior abdominal segments, partly fused on 7th, and fused into a narrow sclerotic band on 8th. Anterior siphuncular sclerites wanting; postsiphuncular sclerites well developed. Second to 4th abdominal segments with 12–20 setae in addition to marginal ones; 6th with 4 or 5 setae between postsiphuncular sclerites; 8th with 7–9 setae, the longer ones being nearly 3 times as long as middle diameter of 3rd antennal segment. Siphunculi strongly imbricated, reticulated on apical 1/4–1/3, 7–8 times as long as wide at middle, 1.0–1.2 times as long as cauda. Cauda elongate, constricted near base, with 16–25 setae.

Alate viviparous female: Body 2.4–2.8 mm. in length. Antennae with about 80–110 sensoria scattered on whole length of 3rd segment. Relative length of antennal

segments: III-42, IV-27, V-24, VI-8+30. Tibiae almost wholly black. Wings normal; veins and pterostigma pale brown. Setae on head about 1.5 times as long as middle diameter of 3rd antennal segment; those on 8th abdominal segment 2.0-2.4 times so. Marginal sclerites of 2nd-4th abdominal segments well developed, smooth, containing 4-8 setae. Marginal sclerites on 5th abdominal segment partly fused to form an incomplete semicircular antesiphuncular sclerite. Postsiphuncular sclerite well developed. Siphunculi about 8 times as long as wide at middle, 1.2-1.3 times as long as cauda, which bears 24-27 setae.

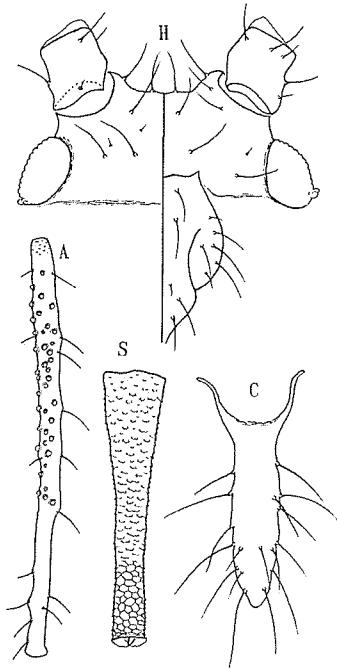


Fig. 1. *Dactynotus triphyllae*, sp. n., apterous viviparous female. A, 3rd antennal segment; C, cauda; H, head; S, siphunculus.

Specimens examined: Many apterae (syntypes) taken at the following localities in Hokkaido:—Sapporo, 15-vii-64, M. Miyazaki leg.; Obihiro, 17-vii-65, H. Higuchi leg.; and some alatae (morphotypes) taken at Sapporo, Hokkaido, 15-vii-64, M. Miyazaki leg.

The type specimens are deposited in the collection of the Entomological Institute, Hokkaido University.

Host plants: *Adenophora triphylla japonica* Rgl.

In Takahashi's key (1962) this species comes near *D. amamianus* (Tak.), but is readily distinguished therefrom by the small and flat primary sensorium on the 5th antennal segment, by more numerous secondary sensoria on the 3rd antennal segment, and by the shorter ultimate rostral segment. This species is closely related to the European species, *D. campanulae* (Kaltenbach, 1843), from which it differs in the following aspects:—Second to 4th abdominal tergites with 12-20 setae in addition to marginal ones; siphunculi reticulated on distal 1/4-1/3 and 1.0-1.2 times as long as cauda which bears 16-25 setae; ultimate rostral segment 1.1 times

as long as 2nd segment of hind tarsus; 1st tarsal segments of all legs with 3-5 setae.

Dactynotus taraxaci (Kaltenbach)

Aphis taraxaci Kaltenbach, Monogr. d. Pflanzenläuse, p. 30, 1843.

Aphis sonchi: Walker, Ann. Mag. Nat. Hist. 2(2): 197, 1948.

Macrosiphum taraxaci: Schouteden, Mém. Soc. Ent. Belg. 12: 240, 1906.

Megalosiphum taraxaci: Mordvilko, Food-Plant Catalogue p. 81, 1929.

Dactynotus taraxaci: Börner, Handb. d. Pflanzenkr. 4th ed. 5(2): 630, 1932.

This species is new to Japan, being characterized by the following aspects:—

Apterous viviparous female: Body dark reddish brown, broadly oval, 2.6-3.2 mm. in length excluding cauda. Antennae wholly black or a little paler on 3rd segment just basally. Legs black; femora on basal part pale brownish. Siphunculi and cauda black.

Third antennal segment with 20-35 sensoria on basal $1/2-2/3$. Relative length of antennal segments: III-30, IV-22, V-18, VI-5+27. Rostrum reaching hind coxae; ultimate segment 1.1 times as long as 2nd segment of hind tarsus. First tarsal segments of all legs with 3 setae, rarely 4 in fore and middle legs. Abdominal tergum wrinkled, with well-developed scleroites which are often fused, including 2-3 setae. Both ante- and postsiphuncular sclerites wanting. Second to 4th abdominal segments with 10-16 setae excluding marginal ones; 8th with 5-8 setae. Siphunculi cylindrical, broadened at base, lightly imbricated, reticulated on apical $1/5-1/4$, 8-9 times as long as wide at middle, and 2.2-2.6 times as long as cauda. Cauda very short, 1.5-1.8 times as long as wide at base, constricted at middle, with 9-10 setae.

Alate viviparous female: Third antennal segment with about 40-50 sensoria on its whole length. Marginal sclerites on 2nd-4th abdominal segments well developed, containing 4-10 setae, without tubercles. Postsiphuncular sclerites well developed. Siphunculi reticulated on apical $1/5$, 10-12 times as long as wide at middle, and 2.5 times as long as cauda, which bears 7-8 setae.

Specimens examined: Many apterae and a few alatae taken at Sapporo, Hokkaido, 10-, 14-, 26-vii-65, M. Miyazaki leg.

Host plants: *Taraxacum* spp.

Distribution: Japan (Hokkaido); Europe; North America.

In Takahashi's key this species drops in *D. giganteus* (Mats.) on account of the black tibiae, but is readily distinguished therefrom by the fewer caudal setae.

Dactynotus sonchi (Linné)

Aphis sonchi Linné, Systema Naturae 12th ed. 2: 735, 1767.

Siphonophora sonchi: Ferrari, Ann. Mus. Civ. Stor. Nat. Genova 3: 215, 1872.

Macrosiphum sonchi: Schouteden, Ann. Soc. Ent. Belg. 45: 117, 1901.

Megalosiphum sonchi: Mordvilko, Food-Plant Catalogue p. 81, 1929.

Dactynotus sonchi: Börner, Handb. d. Pflanzenkr. 4th ed. 5(2): 630, 1932.

Dactynotus sonchi: Hille Ris Lambers, Temminckia 4: 37, 1939.

Macrosiphum lactucicola: Shinji, Monogr. Jap. Aphid. p. 871, 1941.

Dactynotus picridiphaga Takahashi, Kontyû 30(2): 76, 1962, **syn. n.**

On the basis of the present specimens collected from *Sonchus brachyotis* DC. a redescription is given below:—

Apterous viviparous female: Body yellowish brown or reddish to dark brown with brassy luster and sometimes with greenish tinge. Antennae black, with 3rd segment pale at base, or with 3rd segment at both base and subapical part and 4th segment at basal half pale brownish. Legs pale yellowish brown; femora at apex, tibiae both at

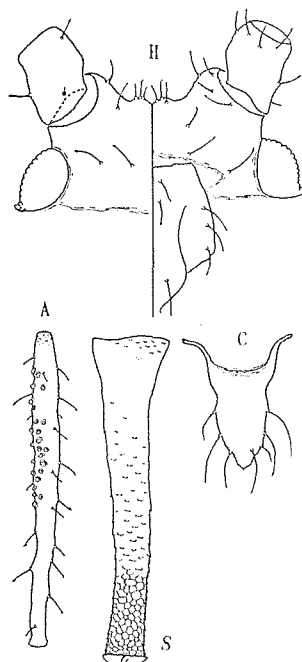


Fig. 2. *Dactynotus taraxaci* (Kaltenbach), apterous viviparous female. A, 3rd antennal segment; B, cauda; C, head; H, head; S, siphunculus.

base and at apex and tarsi black. Siphunculi black; pale at middle in many specimens. Cauda pale yellowish. Body elongate oval, 2.9–3.3 mm. in length excluding cauda.

Head with 4 pairs of dorsal setae which are blunt at tip and are 1.0–1.7 times as long as middle diameter of 3rd antennal segment. Third antennal segment with 6–22 sensoria on basal $1/2$ – $5/8$. Relative length of antennal segments: III–33, IV–24, V–21, VI–6+28. Rostrum reaching hind coxae; ultimate segment 0.8–0.9 times as long as 2nd segment of hind tarsus. Abdominal sclerites very small or wanting on anterior part of abdomen. Antesiphuncular sclerites absent, postsiphuncular sclerites developed. Second to 4th abdominal segments with 5–9 setae excluding marginal ones; 6th with 2 setae between postsiphuncular sclerites; 8th with 4 setae. Dorsal setae of abdomen 1.0–1.7 times as long as middle diameter of 3rd antennal segment. Siphunculi cylindrical, broadened at base, sometimes a little curved outwards, reticulated on apical $1/5$ – $1/4$, imbricated, 12–19 times as long as wide at middle, and 1.6–2.1 times as long as cauda. Cauda elongate coniform or a little swollen at base, blunt apically, with 17–39 setae.

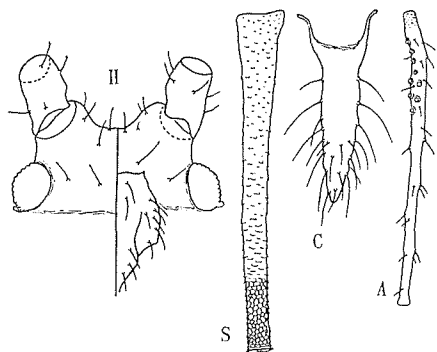


Fig. 3. *Dactynotus sonchi* (Linné), apterous viviparous female. A, 3rd antennal segment; C, cauda; H, head; S, siphunculus.

Alate viviparous female: Third antennal segment with 32–55 sensoria along its whole length. Marginal sclerites on 2nd–4th abdominal segments well developed, spinulose, with a small tubercle, usually with 4–7 setae. Abdominal sclerites small. Setae on head and on anterior part of abdomen about as long as middle diameter of 3rd antennal segment; those on 8th abdominal segment about

1.5 times so. Siphunculi reticulated on apical $1/6$ – $1/4$, 16–19 times as long as wide at middle, 1.9–2.3 times as long as cauda, which bears 21–33 setae.

Specimens examined: Many apterae and alatae taken at Sapporo, Hokkaido, 3–viii-64, H. Takada leg., 10–vii-65, 15–ix-65, M. Miyazaki leg.; an aptera (holotype of *D. picridiphaga* Tak.) taken at Asahikawa, Hokkaido, 6–ix-37, M. Inouye leg.; an aptera and an alata taken at Downe, Kent, England, 29–vi-65, H. C. Dale leg.

Host plants: *Sonchus brachyotis* DC., *Picris hieracioides glabrescens* Ohwi.

Distribution: Japan (Hokkaido); Europe; Africa; Middle East; India; Central Asia; South America.

This species is commonly found on *Sonchus brachyotis* in Sapporo. Judging from the redescription of this species given by Hille Ris Lambers (1939) the Japanese form differs from the European by the fewer sensoria on the 3rd antennal segment and by the siphunculi which are pale at middle in the apterae. However, comparing the present specimens and the type specimen of *D. picridiphaga* Takahashi (1962) with the specimens collected at Kent, England, and identified with *D. sonchi* by Dr. V. F. Eastop, I have come to the conclusion that, in spite of the differences mentioned above, *D. picridiphaga* should be suppressed as a synonym of *D. sonchi*. The aphid recorded by Shinji (1941) under the name of *Macrosiphum lactucicola* might be, in reality, *Dactynotus sonchi*.